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ABSTRACT

This paper examines three topics related to women's involvement in non-traditional occupations: (1) the historical origin of occupational classification; (2) the influence of World War II on women's expanded participation in the workforce; and (3) women's entry into non-traditional occupations. The industrial revolution in Europe and later in the United States created the need for occupational specialization. Both the military and the apprenticeship system prevented women from entering into nontraditional occupations. The major shift of women into nontraditional occupations occurred in the United States during World War II when there were insufficient male workers to produce the military supplies needed for war. Women demonstrated that they could be as efficient and capable as men in acquiring and performing complex technological skills. In the recent war in the Persian Gulf, women again demonstrated they could fly helicopters, handle communication systems, and participate in battle. Federal and state legislation is aimed at providing equality of opportunity for men and women. Yet, if one examines the extent of mathematics and science courses that serve as prerequisites for technology, engineering, and science, female students tend to retreat from such advanced courses in high schools. The proportion of workers has been constantly changing from 1960 to the 1990s. In 1960, white males constituted 62 percent of the work force and white females 28 percent; that proportion will reach 46 percent for males and 39 percent for women in 2000. Projections for the 25 million new workers that will be needed between 1985 and 2000 suggest that 64 percent will be women. Enabling and encouraging women to enter nontraditional occupations that generally require higher levels of knowledge and skills will help the United States to develop its human capital and remain competitive in a knowledge-driven and world-linked economy. (Author/KC)

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FACILITATING WOMEN'S INVOLVEMENT IN NON-TRADITIONAL OCCUPATIONS

PAPER PRESENTED AT THE CONVENTION OF

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Facilitating Women's Involvement in Non-traditional Occupations

Abstract

This paper examines three topics related to women's involvement in non-traditional occupations: 1) the historical origin of occupational classification; 2) the influence of World War II on women's expanded participation in the workforce; and 3) women's entry into non-traditional occupations.

The industrial revolution in Europe and followed later in the United States, created the need for occupational specialization. Both the military and the apprenticeship system precluded women from entering into non-traditional occupations.

The major shift of women into non-traditional occupations occurred in the U.S. during World War II when there were insufficient male workers to produce the military supplies of ships, planes, other vehicles, and munitions for war. "Rosie the Riveter" demonstrated that women could be as efficient and capable as men in acquiring and performing complex technological skills. In the recent war in Kuwait, women again demonstrated they could fly helicopters, handle communication systems, and participate in active battle.

Federal and state legislation is aimed at providing equality of opportunity for men and women. Yet, if one examines the extent of mathematics and science courses which serve a prerequisites for technology, engineering, and science, female students tend to retreat from such advanced courses in high schools.

The proportion of workers has been constantly changing from 1960 to the 1990's. White males constituted 62 percent of the workforce and white females 28 percent in 1960. That proportion will reach 46 percent for males in the year 2000 and 39 percent for women. What is also noted is that fewer individuals of working age will be in the work force. The U.S. Department of Labor (1987) in its executive summary of the *Workforce 2000: Work and Workers for the 21st Century*, noted, "The workforce will grow slowly, becoming older, more female, and more disadvantaged. Only 15 percent of the new entrants to the labor force over the next 13 years will be native white males, compared to 47 percent in that category today" (p. xiii).

This same report states, "Reconcile the conflicting needs of women, work, and families: Three-fifths of all women over age 16 will be at work in the year 2000. Yet most current policies and institutions concerning pay, fringe benefits, time away from work, pensions, welfare, and other issues were designed for a society in which men worked and women stay at home" (p. xiii).

According to the Hudson Institute, projections of the 25 million new workers that will be needed between 1985 and the year 2000, 64 percent will be women. Enabling and encouraging women to enter non-traditional occupations which generally require higher levels of knowledge and skills will help this nation to develop our human capital and remain competitive in a knowledge-driven and world-linked economy.

Facilitating Women's Involvement in Non-traditional Occupations

by William D. Wolansky

This paper will examine three topics related to women's involvement in non-traditional occupations: 1) the historical origin of occupational classifications; 2) the influence of world war II on women's expanded participation in the work force; and 3) women's entry into the non-traditional occupations.

Historically, early societies were not preoccupied with gender biased division of labor. During the nomadic and agricultural eras, it was common for all individuals in families capable of production to contribute to the families' existence. While women aided in production, whether it was food, clothing or shelter, women were also responsible for reproduction and child rearing. Chafetz (1988) provides an excellent discussion of the gender division of labor and the female role of reproduction. Bradley (1989) also discusses the "production orientation" and the "reproduction orientation."

It was the Industrial Revolution, first in Europe then in the United States, that led to job classifications. And, by 1980, the *Dictionary of Occupational Titles* listed 22,000 jobs in the United States. It was in this industrial era that the earlier distinctions brought about by the Guilds and Craft unions of Great Britain recruited only male apprentices to acquire higher order skills and enhanced opportunity for economic participation and gains. It is my assessment that apprenticeship created in the industrial era the tradition for male dominated occupations while denying equal opportunity for women. Of course, this bias is slowly being overcome in the current labor practices within the United States.

Impact of Wars and Technology

Another impact on gender was that men were the benefactors of military training where military technology was generally more advanced than what was used in civilian life. Coupled with this fact was that much of the technology developed was male centered rather than female centered. Wajcman (1991) raises a very important question when she asks, "Can technology be reconstructed around women's interests?" (p. 24). It is only recently that technology is being developed to specifically address female needs. The microwave oven is one such example. However, technology also reduces the lower level skills and knowledge tasks making it very difficult for some women to find meaningful work.

World War II had a great impact on women in the U.S. work force. Rosie the Riveter demonstrated that women could build aircraft, ships, tanks, trucks and other military equipment. In U.S. history, no other single factor—social, cultural or economic—could have altered as rapidly the changing composition of the U.S. work force as the pressing needs of defense.

Greater participation of women in the Iraq-Kuwait conflict altered the U.S. male stronghold, and left yet another indelible mark—that military and defense is no longer limited to one gender.

Women's Entry into Non-Traditional Occupations

Some of the myths of cultural distinctions between the genders are being slowly unraveled and a generally wider acceptance of equality of occupational opportunity is recognized, notwithstanding recent legislation.

Women in the United States constitute 43 percent of the work force and their entry into the work force will exceed male entry through at least year 2000. Human resource potential of women is not being fully utilized. There are psychological and social barriers as well as cultural factors which hinder equal opportunity for women and girls. In the United States, approximately 50 percent of all high school, bachelor's and master's graduates are women (Morgan 1984). Yet, according to Woman's Bureau in the U.S. Department of Labor (1986), women constitute 36 percent of executives, administrators, and managers. Mobility and advancement for women is still problematic.

Vocational Education and Training

Considerable resource evidence exists that students in the United States are more influenced in their curriculum and career choices by counselors than by parents or teachers (Wolansky & Kang, 1992). Yet, the need for math and science as prerequisites for technology, engineering, or scientific work cannot be ignored. In another research study conducted by the Colombo Plan in the Philippines, it was noted that science teachers had more open attitudes toward women students than did male or female vocational education teachers in non-traditional occupational programs.

The Tech/Prep program in vocational education should serve as a magnet curriculum to attract girls and women to non-traditional occupational training programs. Pellatiro (1989) noted that attitudes towards gender by vocational-industrial teachers can have an impact on the recruitment and retention of women in non-traditional occupational programs.

One of the recommendations of the Colombo Plan research staff (1990) was to

consider developing appropriate role models to enhance the equality of women and that qualified teachers be assigned to teach both technological and non-technological subjects areas (p. 52).

Technical curricula can be expanded to meet current and future needs in such areas as Electromedical technology, Instrumentation and Control technology, Chemical technology, Construction technology, and CAD/CAM technology in which women can succeed as readily as men.

At the post-secondary level, women are less influenced by parents, peers, and friends in making curriculum and career choices. Many adult women return to prepare for non-traditional occupations where salaries are higher.

Still another area where women can participate is in-plant re-training programs which help employees to remain employable. Generally these will be high level occupations.

Problems Facing Girls and Women in Education and Non-traditional Training Programs

In an attempt to synthesize, much of what seems to be the pertinent set of problems facing girls and women is largely concerned with access to educational and employment opportunities and the obstacles that tend to prevent girls and women from making adequate progress. Table 1 outlines the steps to progress and obstacles that need to be overcome.

As was noted in a report of the International symposium on the right of women to education with a view to their access to employment, "Equal opportunity to education

was seen as an important road leading to higher positions, respect, and employment" (1987, p. 4).

Are we making progress in enabling girls and women to gain access to a wider range of educational and non-traditional training programs?

Table 1. Problems facing girls and women in education and non-traditional training programs

PROBLEMS FACING GIRLS AND WOMEN IN EDUCATION AND NON-TRADITIONAL TRAINING PROGRAMS	
STEPS TO PROGRESS	OBSTACLES TO BE OVERCOME
1. In the U.S., more boys than girls graduate from high school, but women receive 50% of the Bachelor's and Master's degrees from universities.	1. Provision for child care services. Postponement of child bearing.
2. Teacher encouragement and deliberate recruitment of girls and women into technical, scientific and vocational training programs.	2. Teacher bias towards women in male-dominated programs in science, engineering, technology and vocational education. Strengthening training of counselors in order to increase their understanding of the diversity of job choices girls and women can make.
3. More women pursuing higher education and training are gaining formal qualifications to compete for the better and upwardly mobile jobs.	3. The lack of adequate role models is changing too slowly.
4. Widening ambitions of women to compete in education, training, and employment facilitates their career advancement.	4. Women who receive advanced education and/or training do not always have access to jobs commensurate with the level of training received. The gap between women's equality *de jure* and *de facto* is still wide.
5. Provision of new corporate training programs to train women for more senior positions. Private and public institutions are now responding to this need.	5. The lack of assertiveness, self-reliance, and negative self-image tend to obscure such opportunities to some well-educated and trained women.

Table 1. (continued)

PROBLEMS FACING GIRLS AND WOMEN IN EDUCATION AND NON-TRADITIONAL TRAINING PROGRAMS (continued)	
STEPS TO PROGRESS	**OBSTACLES TO BE OVERCOME**
6. Development of corporate schemes for mentoring women, putting them into promotion fast tracks, and providing them with role models.	6. Generally, individuals with the highest levels of education and training have the greatest opportunity for corporate or in-plant training. More men than women receive in-plant training.
7. Wider use of cooperative vocational education and internships have enabled more girls and women to succeed in non-traditional occupations.	7. Supervision can safeguard against the abuse of women in the workplace.
8. A shortage of young workers will require creating new programs in science, technology and vocational education to attract increasing numbers of young men and women for specialized fields of work.	8. Funding for continued education and training is a problem more often for women than for men because of traditional ideology that women are less likely to get bank loans for study purposes.
9. Economic conditions are creating pressures on more women to upgrade or continue their higher education to remain competitive in the workplace and to increase their earning capacity.	9. Girls and women who did not complete high school find it difficult to overcome this deficiency. Community colleges tend to help them overcome this obstacle.
10. Education, labor, and industry all recognize that it is essential to promote quality educational opportunities for girls and women in all fields, types and levels of education.	10. It is at the local level, where education and training are provided, that the obstacles need to be identified and confronted.
11. Teachers are being sensitized to gender differences. Improved student/teacher relationships tend to strengthen female retention in non-traditional education programs.	11. Any form of discrimination in the classroom, labs, or fieldwork is a violation of the law. Enforcement is the problem.
12. With many more women working today, girls recognize the need for advanced training and education to achieve economic independence.	12. Equal pay for equal value work is not uniformly enforced, especially during economic down-turn periods.

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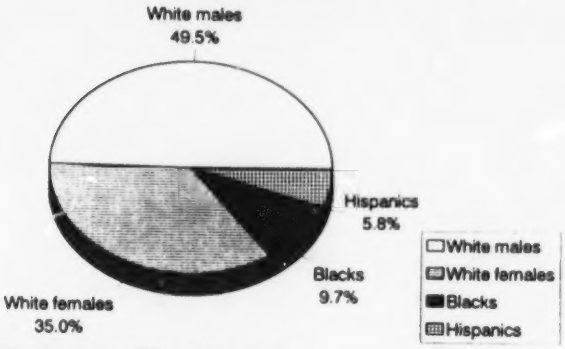
Composition of U.S. Labor Force: 1980

Source: U.S. Department of Labor

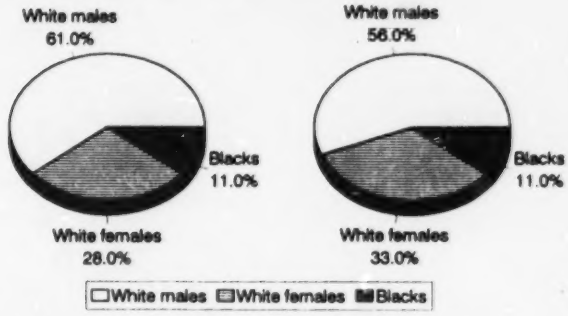


Number of workers : 1980 = 106.9 million

NA = not available; *Includes Am. Indians, Alaskan natives, & Pacific Islanders. NOTE: figures may not add to 100% because persons of Hispanic origin may be of any race.

Composition of U.S. Labor Force: 1960 & 1970

Source: U.S. Department of Labor

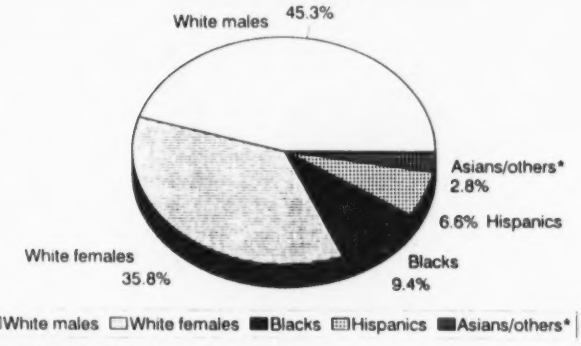


Number of workers : 1960 = 72.1 million; 1970 = 82.8 million

NA = not available; *Includes Am. Indians, Alaskan natives, & Pacific Islanders. NOTE: figures may not add to 100% because persons of Hispanic origin may be of any race.

Composition of U.S. Labor Force: 1988

Source: U.S. Department of Labor

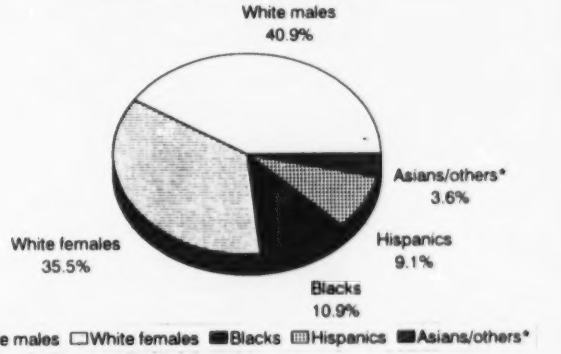


Number of workers : 1988 = 121.7 million

NA = not available; *Includes Am. Indians, Alaskan natives, & Pacific Islanders. NOTE: figures may not add to 100% because persons of Hispanic origin may be of any race.

Composition of U.S. Labor Force: 2000

Source: U.S. Department of Labor

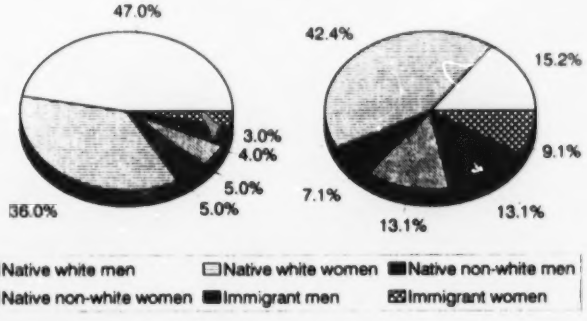


Number of workers : 1988 = 141.1 million

NA = not available; *Includes Am. Indians, Alaskan natives, & Pacific Islanders. NOTE: figures may not add to 100% because persons of Hispanic origin may be of any race.

U.S. Labor Force 1985 & Net New Workers 1985-2000

Source: Hudson Institute



1985 Total labor force = 115,461,000

1985-2000 Net new workers = 25,000,000

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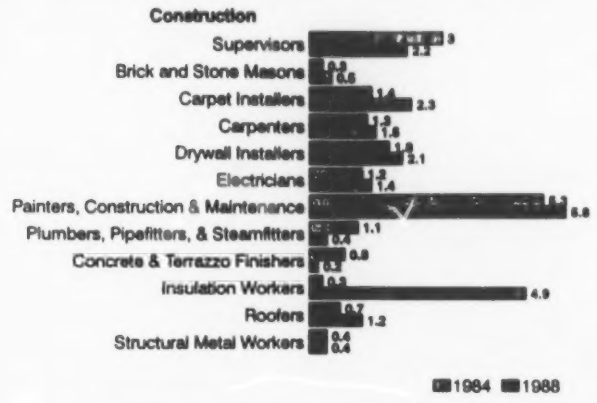
Employed Civilian Women by Detailed Occupation



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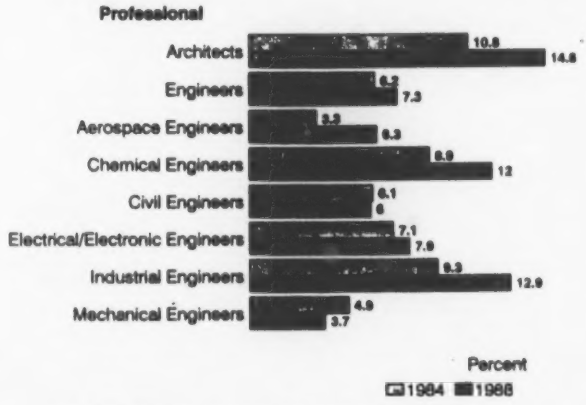

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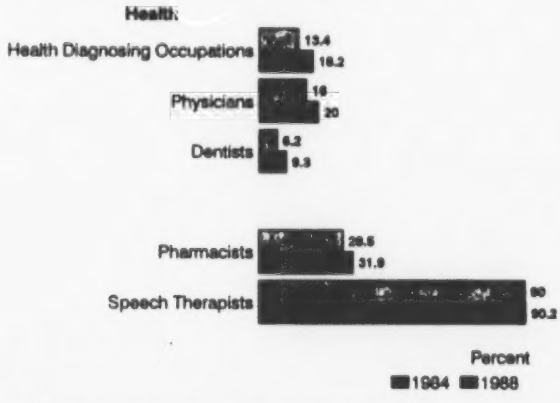

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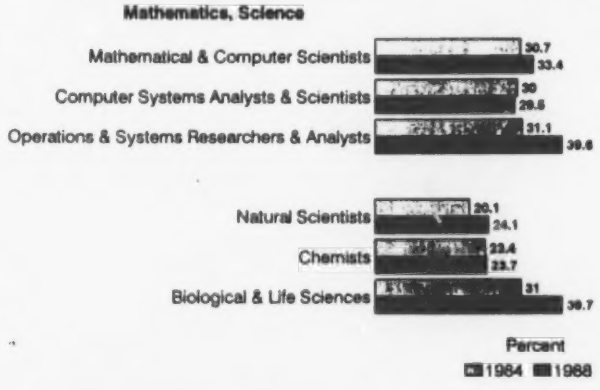

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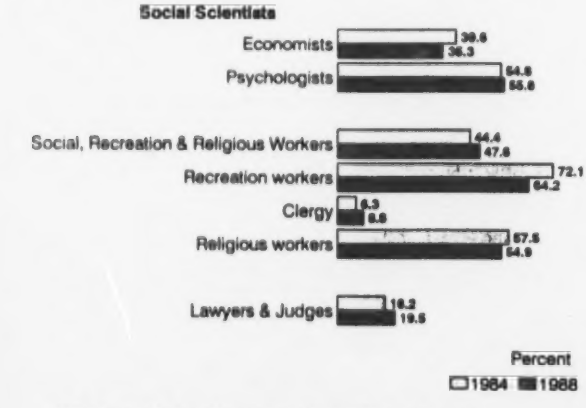

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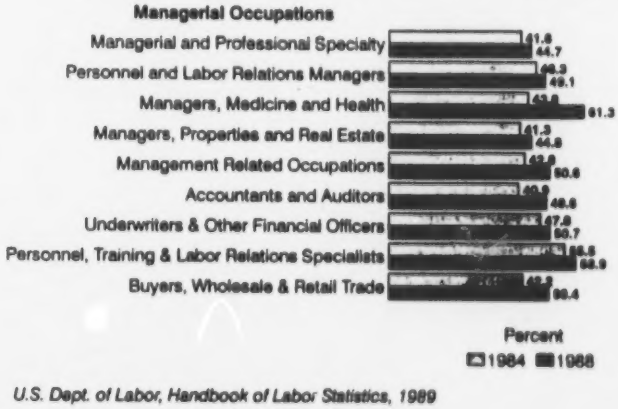

U.S. Dept. of Labor, Handbook of Labor Statistics, 1989

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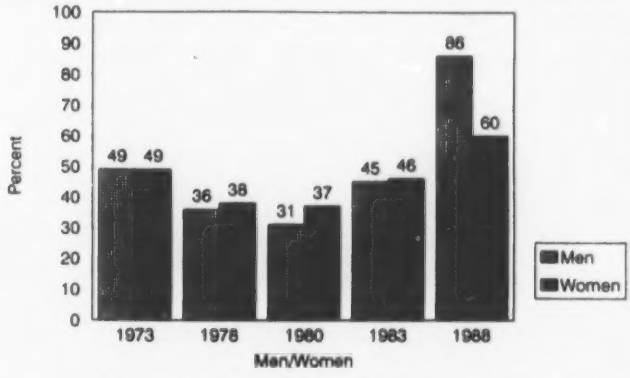
The College Advantage

In 1973, men and women with college degrees and ten years of work experience earned 49% more than men and women with high school degrees.

The College Advantage

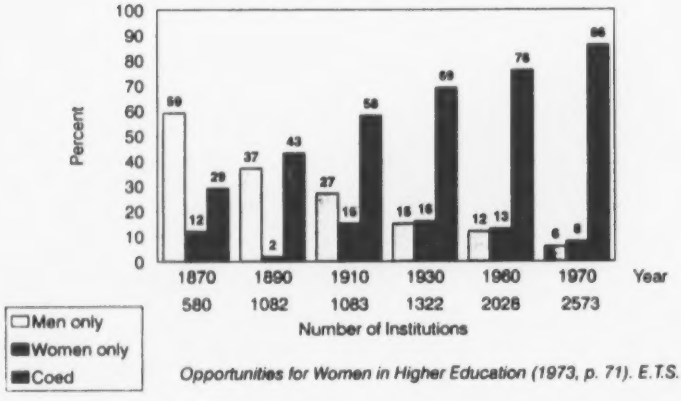
College Degrees + 10 Yrs. Work vs. H.S. Degrees



American Enterprise Institute for Public Policy Research (1989)

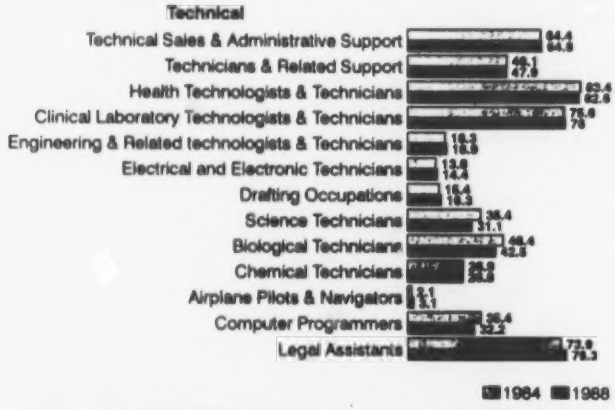
Institutions of Higher Ed. by Sex Status

Selected Years 1870-1970



Opportunities for Women in Higher Education (1973, p. 71). E.T.S.

Employed Civilian Women by Detailed Occupation



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